Sandleford Park, Newbury

Appendix F23: Arable Margin Plants Survey Report

Bloor Homes & The Sandleford Farm Partnership

February 2019

The Pavilion, 1st Floor, Botleigh Grange Office Campus, Hedge End, Southampton, Hampshire, SO30 2AF

Tel: 02382 022800

Email: ecology@wyg.com

Document Control

Project:	Sandleford Park, Newbury
Client:	Bloor Homes & The Sandleford Farm Partnership
Job Number:	A070660-24
File Origin:	I:\Projects\Projects A070000 on\A070660-24 Sandleford Park Application 3a Duplication\REPORTS

Issue 1	December 2018	Final
Prepared by:		Dr Tim Rich BSc PhD MCIEEM **Principal Ecologist**
Checked By:		Richard Penson BSc, MCIEEM **Project Ecologist**
Verified By:		Tamsin Clark MCIEEM **Associate Ecologist**

Rev:	Date:	Updated by:	Verified by:	Description of changes:
2	Feb 2019	Tamsin Clark	N/A	Updated as ES addendum to application 3a

Contents

FIGURES

Executive Summary

Contents	Summary
Site Location	The site is located at Sandleford Park in Newbury, West Berkshire, centred on OS Grid Reference SU 46847 64550. The site comprises agricultural fields with areas of grassland and several copses of ancient woodland. A central valley runs from the north-western corner of the site towards the River Enborne at the site's southern boundary.
Existing Site Information	WYG completed an initial ecological appraisal in 2008 with update surveys completed in 2011, 2013, 2014, 2015 and 2017. In addition a number of protected species surveys and botanical surveys have been completed at the site over this time, and during 2018.
Scope of this Survey(s)	This survey was originally carried out in May 2014 to record arable margin plants species on site and assess the impact to these ecological receptors by the proposed development, and was repeated in July 2018.
Results	The Sandleford fields were not considered to be rich in specialist arable weeds, and the current weed flora is assessed as being of Local value, supporting a limited range of mostly common and widespread arable weeds. Based on this survey, the arable field margins are not considered to qualify as UK Biodiversity Action Plan Priority Habitat, and to be of Local value.
Recommendations	Mitigation for notable arable weeds has been built into the proposals and Ecological Mitigation and Management Plan (Appendix F18) and remains valid.

Glossary

CEcol	Chartered Ecologist
CEnv	Chartered Environmentalist
CIEEM	Chartered Institute of Ecology & Environmental Management
Habitat Regulations	Conservation of Habitats and Species Regulations 2017
HAP	Habitat Action Plan
HBIC	Hampshire Biodiversity Information Centre
HPI	Habitat(s) of Principal Importance
LERC	Local Ecological Record Centre
LBAP	Local Biodiversity Action Plan
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
NBN Gateway	National Biodiversity Network Gateway
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NPPF	National Planning Policy Framework
SPI	Species of Principal Importance
TVERC	Thames Valley Environmental Records Centre
WHS	Wildlife Heritage Sites

1.0 Introduction

1.1 Background

WYG was commissioned by Bloor Homes and the Sandleford Farm Partnership on the 27th November 2017 to undertake an update arable margin plant survey with the aim of clarifying the current status of arable margin plants at Sandleford Park , with reference to the current proposals.

This update report has been prepared by Tim Rich, Principal Ecologist.

1.2 Site Location

The site is located at Sandleford Park in Newbury, West Berkshire and is centred at Ordnance Survey National Grid Reference SU 46847 64550. The survey area, hereafter referred to as the 'site' comprises of agricultural fields with areas of grassland and several copses of ancient woodland dispersed throughout. A central valley runs from the north-western corner of the site towards the River Enborne at the site's southern boundary.

For details of the development description, please see the main ES chapter.

1.3 Purpose of the Report

The objectives of this is assessment are to carry-out:

- Review the findings of the 2014 and 2018 arable margin plant surveys, which involved a desk study and walkover of the site to record arable margin species;
- An assessment of the potential ecological receptors present on site, any constraints they pose to the proposed development and any recommendations for any further surveys, avoidance, mitigation or enhancement measures that are needed (as appropriate).

Note that Latin names are provided at the first mention of each species and common names (where possible) are then used throughout the rest of the report for ease of reading.

2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

An extended Phase 1 habitat survey was first completed by WYG at the site in 2008, this was updated periodically, with the most recent Ecological Appraisal update in December 2017 (Appendix F1). There have been no significant changes in the habitats on site during this time. Arable margin plant surveys were last completed at Sandleford Park in 2018, and prior to this in 2014 (WYG, 2016). The findings of the 2014 survey are reassessed in the current 2018 report, with reference to the current proposals for the site.

2.1.2 Local Ecological Records Centre

Up to date information was requested from Thames Valley Environmental Records Centre (TVERC) and Hampshire Biodiversity Information Centre (HBIC) in December 2017, regarding the presence of protected and notable species within 2km of the proposed development site, including wild flora.

2.1.3 Local Species Recorders

The Flora of Berkshire, published in 2005 (Crowley 2005) with online updates covering the period 2005 to 2014 (Crowley 2014), provides the County status of the species of all flora likely to be recorded during the survey.

2.2 Field Surveys

The following methodologies have been used to identify the ecological receptors present on or near the site, which are relevant to the proposed development.

2.2.1 Habitats

The site is mainly in agricultural use and also contains several ancient woodland areas, which are dispersed throughout the site. These woodlands are locally designated, Wildlife Heritage Sites (WHS) and are located on the site and in the immediate surrounds and are designated due to the presence of ancient woodland indicator species. The site has a fairly complex topography, but generally slopes towards the River Enborne which runs along the southern boundary. It also contains a central valley which runs from the north-western corner of the site towards the river in the south. At the fringes of the site are large tracts of mainly flat/gently sloping land, particularly towards the northern and western boundaries. Immediately beyond the site boundary to the south and west is agricultural land and woodland.

2.2.2 Survey Methodology

The fields were surveyed on 4 July 2018 in warm, dry weather by Dr Tim Rich BSc PhD MCIEEM, who has 36 years of experience of botanical surveys. The six fields previously surveyed for arable margin plants were surveyed by walking around the margins with occasional incursions into the crops. In addition, another field with a failed maize crop was also recorded (Field 5m).

Vascular plant species were recorded for each field using the DAFOR frequency scale (D=dominant, A= abundant, F= frequent, O = occasional, R=rare, sometimes qualified with V=very or L=locally) and the look-see approach (cf. Hill *et al*. 2005). Plant nomenclature follows Stace (2010).

The arable fields surveyed and approximate routes walked in 2018 are shown on Figure 1. The numbering of the fields follows WYG (2018) to enable comparison.

2.3 Limitations

The survey was completed in July which is within the optimal survey window for arable margin plants. Some areas of arable land were already very dried up with plants gone to seed, though most of these remained readily identifiable. As such this is not considered to be a limitation to the accurate assessment of the habitats and the dominant species of the respective vegetation types were visible and identifiable.

To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. As a result, this survey focuses on assessing the potential of the site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to those given protection under UK or European wildlife legislation. This report cannot therefore be considered a comprehensive assessment of the ecological interest of the site. However, it does provide an assessment of the ecological interest present on the day the site was visited and highlights areas where further survey work may be recommended.

The details of this report will remain valid for a period of **two years** from the date of the survey, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

Notes on plants recorded

The precise definition of what is an arable "weed" is open to interpretation and there is no standard list. The list of arable plants in one of the standard books (Wilson & King 2003) is a little restricted for the purposes here, so all plants present in the fields were recorded in 2018 to allow comparison with previous surveys in WYG (2016). Thus cat's-ear *Hypochaeris radicata*, a typical plant of grassland which was present in some fields, is not usually regarded as an arable weed but was listed when in the fields. Species which are not typical arable weeds such as white clover *Trifolium repens* are indicated in the tables with an *. Bryophytes were not recorded in 2018.

Most maize plots also have abundant cockspur *Echinochloa crus-gallii* which was sown as a 'millet' crop c. 15 years ago and has persisted and resisted attempts to eradicate it.

An amaranth (*Amaranthus*) species has previously been recorded as green amaranth (=green pigweed; *A. hybridus* or *A. powellii*) but was yet to come into flower and/fruit so the previous identification was accepted as *A. hybridus*.

3.0 Baseline Conditions

3.1 Survey Results

Three types of arable field were recorded:

- Setaside (Figure 1, Field 1) which had a mixture of relict crops (wheat, Italian rye-grass), arable weeds and more generalist weeds.
- Cereal crops of wheat or oats (Figure 1, Fields 2, 3, 4) which are well-managed and largely free from weeds, some of which have been recently treated with herbicide. The arable weeds were generally confined to the margins apart from some resistant grasses (Italian rye-grass, wild oat) in the crops themselves.
- Maize plots (Figure 1, fields 1m, 2Am, 3m, 5m) are small areas tilled and planted in April/May 2018 with maize as a game cover/food crop which has largely failed at the time of survey due to a combination of drought and grazing by deer and hares. These areas had many weed seedlings and young plants which were not flowering.

The species listed in the fields in 2018 are given below with the previous records in 2011/2014 for comparison.

3.2 Field 1

This field was Setaside in 2011/14 and in 2018. There are relative few specialist arable weeds, many species being generalist weeds (Table 1).

Table 1. Arable weeds recorded in Field 1 in 2011/14 (WYG 2016) and 2018.

English Name	Scientific Name	2011/2014	2018
Yarrow*	*Achillea millefolium*	Occasional	-
Fool's parsley	*Aethusa cynapium ssp cynapium*	Scarce in 2011; not present in 2014	-
Black bent	*Agrostis gigantea*	-	Locally frequent
Scarlet pimpernel	*Anagallis arvensis*	Frequent	-
Great brome	*Anisantha diandra*	-	Locally abundant
Barren brome	*Anisantha sterilis*	Present	Locally abundant
Parsley-piert	*Aphanes arvensis*	-	Occasional
Thale cress	*Arabidopsis thaliana*	-	Occasional
Medium-flowered wintercress	*Barbarea intermedia*	-	Rare
Soft-brome	*Bromus hordeaceus*	-	Frequent
Shepherd's-purse	*Capsella bursa-pastoris*	Frequent	-
Common mouse-ear	*Cerastium fontanum*	Frequent	Rare
Creeping thistle	*Cirsium arvense*	Frequent	Rare
Spear thistle	*Cirsium vulgare*	-	Rare
Canadian fleabane	*Conyza canadensis*	Occasional; not present in 2014	Occasional
Smooth hawk's-beard	*Crepis capillaris*	Occasional	Frequent
Cock's-foot*	*Dactylis glomerata*	Present	-
American willowherb	*Epilobium ciliatum*	Occasional	-
Black bindweed	*Fallopia convolvulus*	Occasional	-
Cut-leaved crane's-bill	*Geranium dissectum*	-	Frequent
Small flowered crane's-bill	*Geranium pusillum*	Occasional	-
Marsh cudweed	*Gnaphalium uliginosum*	Scarce	-
Common cat's-ear	*Hypochaeris radicata*	Occasional	Rare
Toad rush	*Juncus bufonius*	Occasional	Rare
Perennial rye grass*	*Lolium perenne*	Present	-

Pineappleweed	*Matricaria discoidea*	Occasional	-
Scented mayweed	*Matricaria recutita*	Occasional	-
Black medick	*Medicago lupulina*	Frequent	-
Field forget-me-not	*Myosotis arvensis*	Occasional	Rare
Pale persicaria	*Persicaria lapathifolia*	Occasional	-
Greater plantain	*Plantago major*	Frequent	-
Annual meadow grass	*Poa annua*	Present	-
Rough meadow grass*	*Poa trivialis*	Present	-
Knot-grass	*Polygonum aviculare*	Abundant	Occasional
Self-heal*	*Prunella vulgare*	Occasional	-
Common ragwort	*Senecio jacobaea*	Occasional	Rare
Groundsel	*Senecio vulgaris*	Frequent	-
Field madder	*Sherardia arvensis*	Scarce	Rare
White campion	*Silene latifolia*	-	Rare
Rough sow-thistle	*Sonchus asper*	Occasional	Occasional
Smooth sow-thistle	*Sonchus oleraceus*	Occasional	-
Corn spurrey	*Spergula arvensis*	Frequent in 2011; occasional in 2014	Rare
Dandelion	*Taraxacum officinale*	Occasional	-
Hop trefoil	*Trifolium campestris*	Occasional/Frequent	-
Lesser trefoil	*Trifolium dubium*	Occasional	Occasional
White clover*	*Trifolium repens*	Frequent	-
Scentless mayweed	*Tripleurospermum inodorum*	Occasional	Occasional
Green field-speedwell	*Veronica agrestis*	Occasional	-
Wall speedwell	*Veronica arvensis*	Frequent	Rare
Germander speedwell*	*Veronica chamaedrys*	Frequent	-
Common field speedwell	*Veronica persica*	Occasional	-
Thyme leaved speedwell	*Veronica serpyllifolia*	Occasional	Occasional
Hairy tare	*Vicia hirsuta*	Abundant	Rare
Common vetch	*Vicia sativa*	Occasional	-
Smooth tare	*Vicia tetrasperma*	-	Rare
Field pansy	*Viola arvensis*	Abundant	Occasional
Squirrel-tail fescue	*Vulpia bromoides*	-	Occasional
Rat's-tail fescue	*Vulpia myuros*	-	Locally abundant

* Species which are not typical arable weeds

There were also several small maize plots on the north side with a relativly poor flora (Field 1m; Table 2):

Table 2. Arable weeds recorded in Field 1m in 2018.

English Name	**Scientific Name**	**2018**
Green pigweed	*Amaranthus hybridus*	Occasional
Fat hen	*Chenopodium album*	Occasional
Field bindweed	*Convolvulus arvensis*	Occasional
Sun spurge	*Euphorbia helioscopia*	Rare
Black bindweed	*Fallopia convolvulus*	Rare
Red deadnettle	*Lamium purpureum*	Occasional
Pale persicaria	*Persicaria maculosa*	Rare
Groundsel	*Senecio vulgaris*	Rare

Black nightshade	*Solanum nigrum*	Occasional
Corn spurrey	*Spergula arvensis*	Rare
Scentless mayweed	*Tripleurospermum inodorum*	Frequent

3.3 Field 1A

This grassland was Setaside in 2014 with very few specific arable weeds (WYG 2016) but was cut for hay in 2018 prior to survey so the grassland was not practical to record and wouldn't have had arable weeds. However, one small maize plot was present on the west side (Figure 1) so this was recorded (Table 3):

Table 3. Arable weeds recorded in Field 1Am in 2018.

English Name	Scientific Name	2018
Green pigweed	*Amaranthus hybridus*	Occasional
Scarlet pimpernel	*Anagallis arvensis*	Occasional
Shepherd's-purse	*Capsella bursa-pastoris*	Frequent
Hairy bittercress	*Cardamine hirsuta*	Rare
Fat hen	*Chenopodium album*	Rare
Cockspur	*Echinochloa crus-gallii*	Abundant
Sun spurge	*Euphorbia helioscopia*	Occasional
Black bindweed	*Fallopia convolvulus*	Occasional
Small flowered crane's-bill	*Geranium pusillum*	Rare
Marsh cudweed	*Gnaphalium uliginosum*	Rare
Sharp-leaved fluellin	*Kickxia elatine*	Occasional
Red deadnettle	*Lamium purpureum*	Occasional
Annual dog's-mercury	*Mercurialis annua*	Occasional
Wild radish	*Raphanus raphanistrum*	Rare
Groundsel	*Senecio vulgaris*	Rare
Hedge mustard	*Sisymbrium officinale*	Rare
Rough sow-thistle	*Sonchus asper*	Rare
Smooth sow-thistle	*Sonchus oleraceus*	Rare
Corn spurrey	*Spergula arvensis*	Frequent
Field woundwort	*Stachys arvensis*	Locally abundant
Scentless mayweed	*Tripleurospermum inodorum*	Rare
Speedwell	*Veronica sp.* (*persica/polita/agrestis*, not flowering)	Occasional

3.4 Field 2

This field was Setaside in 2011 (WYG 2012) but had a well-managed crop of oats in 2018 with a very poor arable flora (Figure 1; Table 4).

Table 4. Arable weeds recorded in Field 2 in 2011/14 (WYG 2016) and 2018.

English Name	Scientific Name	2011/2014	2018
Yarrow*	*Achillea millefolium*	Scarce	-
Black bent	*Agrostis gigantea*	-	Rare
Creeping bent	*Agrostis stolonifera*	Abundant	-
Great brome	*Anisantha diandra*	-	Rare
Wild oat	*Avena fatua*	-	Occasional
Medium-flowered wintercress	*Barbarea intermedia*	-	Rare
Meadow brome	*Bromus commutatus*	-	Rare
Fat hen	*Chenopodium album*	Occasional	-
Creeping thistle	*Cirsium arvense*	Frequent	Rare
Smooth hawk's-beard	*Crepis capillaris*	Frequent	-
Crested dog's-tail	*Cynosurus cristatus*	Occasional	-
Field horsetail	*Equisetum arvense*	Occasional	Rare
Common fumitory	*Fumaria officinalis*	-	Rare
Marsh cudweed	*Gnaphalium uliginosum*	Occasional	Rare
Toad rush	*Juncus bufonius*	Frequent	Rare
Swine-cress	*Lepidium didymum*	Occasional	Rare
Hoary cress*	*Lepidium draba*	Occasional	-
Italian rye-grass	*Lolium multiflorum*	-	Frequent
Pineapple weed	*Matricaria discoidea*	Frequent	-
Field forget-me-not	*Myosotis arvensis*	Occasional	-
Common poppy	*Papaver rhoeas*	Occasional	Rare
Annual meadow-grass	*Poa annua*	-	Rare
Knot-grass	*Polygonum aviculare*	Abundant	-

Wild radish	*Raphanus raphanistrum*		Rare
Groundsel	*Senecio vulgaris*	Occasional	Rare
Corn spurrey	*Spergula arvensis*	Not recorded in 2011; occasional in 2014	-
Dandelion species	*Taraxacum sp.*	Occasional	-
Scentless mayweed	*Tripleurospermum inodorum*	Occasional	Rare
Green field speedwell	*Veronica agrestis*	Scarce	-
Field speedwell	*Veronica arvensis*	-	Rare
Field pansy	*Viola arvensis*	Frequent	
Rat's-tail fescue	*Vulpia myuros*	-	Rare

* Species which are not typical arable weeds

3.5 Field 2A

This field was Setaside in 2014, and had an oat crop with very few weeds in 2018 (Figure 1; Table 5).

Table 5. Arable weeds recorded in Field 2A in 2011/14 (WYG 2016) and 2018.

English Name	Scientific Name	2011/2014	2018
Yarrow*	*Achillea millefolium*	Present 2014	-
Barren brome	*Anisantha sterilis*	Present 2014	-
Great brome	*Anisantha diandra*	-	Occasional
Lesser burdock	*Arctium minus*	Present 2014	-
Meadow brome	*Bromus commutatus*	Present 2014	-
Common mouse-ear	*Cerastium fontanum*	Present 2014	-
Creeping thistle	*Cirsium arvense*	Present 2014	-
Spear thistle	*Cirsium vulgare*	Present 2014	-
Cock's-foot*	*Dactylis glomerata*	Present 2014	-
Cut-leaved crane's-bill	*Geranium dissectum*	Present 2014	-
Small flowered crane's-bill	*Geranium pusillum*	Present 2014	-
Hogweed*	*Heracleum sphondylium*	Present 2014	-
Yorkshire fog	*Holcus lanatus*	Present 2014	-
Wild oat	*Avena fatua*	-	Occasional
Cat's-ear	*Hypochaeris radicata*	Present 2014	-
Nipplewort	*Lapsana communis*	Present 2014	-
Hawkbit sp.	*Leontodon sp.*	Present 2014	-
Oxeye daisy*	*Leucanthemum vulgare*	Present 2014	-
Perennial rye grass	*Lolium perenne*	Present 2014	-
Italian rye-grass	*Lolium multiflorum*	-	Frequent
Black medick	*Medicago lupulina*	Present 2014	-
Long-headed poppy	*Papaver dubium*	Present 2014	-
Timothy grass*	*Phleum pratense*	Present 2014	-
Ribwort plantain	*Plantago lanceolata*	Present 2014	-
Annual meadow grass	*Poa annua*	Present 2014	-
Rough meadow grass*	*Poa trivialis*	Present 2014	-
Creeping buttercup	*Ranunculus repens*	Present 2014	-
Wild radish	*Raphanus raphanistrum*	Present 2014	-

Dock sp.	*Rumex* sp.	Present 2014	-
Common ragwort	*Senecio jacobaea*	Present 2014	-
Hedge mustard	*Sisymbrium officinale*	Present 2014	-
Smooth sow-thistle	*Sonchus oleraceus*	Present 2014	-
Lesser hop-trefoil	*Trifolium dubium*	Present 2014	-
White clover*	*Trifolium repens*	Present 2014	-
Colt's-foot	*Tussilago farfara*	Present 2014	-
Germander speedwell*	*Veronica chamaedrys*	Present 2014	-
Field pansy	*Viola arvensis*	Present 2014	-

* Species which are not typical arable weeds

In addition, there was a small maize plot on the NW side adjacent to the copse (Field 2Am) with a range of weeds (Figure 1; Table 6):

Table 6. Arable weeds recorded in Field 2Am in 2018.

English Name	**Scientific Name**	**2018**
Green pigweed	*Amaranthus hybridus*	Occasional
Mugwort	*Artemisia vulgaris*	Rare
Fat hen	*Chenopodium album*	Occasional
Fig-leaved goosefoot	*Chenopodium ficifolium*	Rare
Many-seeded goosefoot	*Chenopodium polyspermum*	Rare
Field bindweed	*Convolvulus arvensis*	Occasional
Thorn apple	*Datura stramonium*	Locally frequent
Cockspur	*Echinochloa crus-gallii*	Frequent
Field horse-tail	*Equisetum arvense*	O Occasional
Sun spurge	*Euphorbia helioscopia*	Rare
Black bindweed	*Fallopia convolvulus*	Rare
Marsh cudweed	*Gnaphalium uliginosum*	Occasional
Red deadnettle	*Lamium purpureum*	Occasional
Pale persicaria	*Persicaria maculosa*	Rare
Groundsel	*Senecio vulgaris*	Rare
Black nightshade	*Solanum nigrum*	Occasional
Corn spurrey	*Spergula arvensis*	Occasional
Scentless mayweed	*Tripleurospermum inodorum*	Rare

3.6 Field 3

This field was arable in both 2011/14 and in 2018, when it had a well-managed wheat crop with very few weeds (Figure 1; Table 7).

Table 7. Arable weeds recorded in Field 3 in 2011/14 (WYG 2016) and 2018.

English Name	Scientific Name	2011-2014	2018
Fool's-parsley	*Aethusa cynapium ssp agrestis*	Occasional	-
Fool's-parsley	*Aethusa cynapium ssp cynapium*	Occasional	-
Green pigweed	*Amaranthus hybridus*	Scarce; not found in 2014	-
Scarlet pimpernel	*Anagallis arvensis*	Occasional	Rare
Great brome	*Anisantha diandra*	-	Rare
Sterile brome	*Anisantha sterilis*	Occasional	-
Parsley piert	*Aphanes arvensis*	-	Rare
Mugwort	*Artemisia vulgaris*	Abundant	-
Wild oat	*Avena fatua*		Rare
Bristle oat	*Avena strigosa*	Frequent	-
Meadow brome	*Bromus commutatus*	Occasional	Frequent
Soft-brome	*Bromus hordeaceus*	-	Rare
Sticky mouse-ear	*Cerastium glomeratum*	Occasional	-
Fat-hen	*Chenopodium album*	Frequent	-
Smooth hawk's-beard	*Crepis capillaris*	-	Rare
Field horsetail	*Equisetum arvense*	-	Rare
Sun spurge	*Euphorbia helioscopia*	Occasional	-
Petty spurge	*Euphorbia peplus*	Frequent	-
Black bindweed	*Fallopia convolvulus*	Occasional	-
Cleavers	*Galium aparine*	-	Rare
Cut-leaved crane's-bill	*Geranium dissectum*	Frequent	Rare
Dove's-foot crane's-bill	*Geranium molle*	Occasional	-

Marsh cudweed	*Gnaphalium uliginosum*	Scarce	Locally frequent
Toad rush	*Juncus bufonius*	Frequent	Rare
Sharp-leaved fluellin	*Kickxia elatine*	-	Rare
Swine-cress	*Lepidium didymum*	Occasional	-
Cultivated flax	*Linum usitatissimum*	Occasional; not found in 2014	-
Italian rye-grass	*Lolium multiflorum*	-	Frequent
Pineapple weed	*Matricaria discoidea*	Occasional	-
Red bartsia	*Odontites verna*	Scarce; not found in 2014	-
Water pepper	*Persicaria hydropiper*	-	Rare
Pale persicaria	*Persicaria lapathifolia*	Scarce	-
Red-leg	*Persicaria maculosa*	Frequent	-
Annual meadow-grass	*Poa annua*	-	Occasional
Wild radish	*Raphanus raphanistrum*	Scarce	-
Field madder	*Sherardia arvensis*	Occasional	-
Hedge-mustard	*Sisymbrium officinale*	Frequent	-
Black nightshade	*Solanum nigrum*	Occasional	-
Smooth sow-thistle	*Sonchus oleraceus*	Occasional	-
Scentless mayweed	*Tripleurospermum inodorum*	Frequent	Rare
Green field speedwell	*Veronica agrestis*	Occasional	-
Wall speedwell	*Veronica arvensis*	Occasional	-
Germander speedwell*	*Veronica chamaedrys*	Frequent	-
Hairy tare	*Vicia hirsuta*	Frequent	-
Common vetch	*Vicia sativa*	-	Rare
Smooth tare	*Vicia tetrasperma*	-	Rare
Wild pansy	*Viola tricolor* ssp. *tricolor*	Frequent	-

* Species which are not typical arable weeds

A small area of maize was also present on the SW side (Field 3m; Table 8):

Table 8. Arable weeds recorded in Field 3m in 2018.

English Name	Scientific Name	2018
Fat hen	*Chenopodium album*	Occasional
Fig-leaved goosefoot	*Chenopodium ficifolium*	Occasional
Creeping thistle	*Cirsium arvense*	Locally frequent
Field bindweed	*Convolvulus arvensis*	Rare
Thorn apple	*Datura stramonium*	Rare
Black bindweed	*Fallopia convolvulus*	Rare
Cut-leaved crane's-bill	*Geranium dissectum*	Rare
Marsh cudweed	*Gnaphalium uliginosum*	Rare
Groundsel	*Senecio vulgaris*	Rare
Black nightshade	*Solanum nigrum*	Frequent
Corn spurrey	*Spergula arvensis*	Rare

3.7 Field 4

This field was arable in 2011/14 and arable with wheat in 2018. It has a very poor weed flora largely confined to the SE margin and along the track edges (Figure 1; Table 9).

Table 9. Arable weeds recorded in Field 4 in 2011/14 (WYG 2016) and 2018.

English Name	Scientific Name	2011-2014	2018
Fool's parsley	*Aethusa cynapium*	-	Rare
Black bent	*Agrostis gigantea*	-	Occasional
Scarlet pimpernel	*Anagallis arvensis*	Frequent	Rare
Great brome	*Anisantha diandra*		Rare
Sterile brome	*Anisantha sterilis*	Occasional	Rare
Lesser burdock	*Arctium minus*	-	Rare
Common orache	*Atriplex patula*	-	Locally frequent
Wild oat	*Avena fatua*	-	Rare
Soft brome	*Bromus hordeaceus*	Frequent	Rare
Shepherd's-purse	*Capsella bursa-pastoris*	Abundant	Rare
Common mouse-ear	*Cerastium fontanum*	Occasional	-
Fat-hen	*Chenopodium album*	Occasional	Occasional
Creeping thistle	*Cirsium arvense*	-	Rare
Smooth hawk's-beard	*Crepis capillaris*	-	Frequent
Short-fruited willowherb	*Epilobium obscurum*	-	Occasional
Black bindweed	*Fallopia convolvulus*	Scarce	-
Common fumitory	*Fumaria officinalis*	-	Rare
Cut-leaved crane's-bill	*Geranium dissectum*	Occasional	Very locally frequent
Hogweed*	*Heracleum sphondylium*	Occasional	-
Red deadnettle	*Lamium purpureum*	-	Rare
Nipplewort	*Lapsana communis*	Occasional	Rare
Swine-cress	*Lepidium coronopus*	-	Rare
Lesser swine-cress	*Lepidium didymum*	-	Rare

Italian rye-grass	*Lolium multiflorum*	-	Rare
Hybrid ryegrass	*Lolium* x *boucheanum*	Scarce	-
Field forget-me-not	*Myosotis arvensis*	Scarce	Rare
Common poppy	*Papaver rhoeas*	-	Rare
Red-leg	*Persicaria maculosa*	Frequent	-
Annual meadow grass	*Poa annua*	-	-
Knot-grass	*Polygonum aviculare*	Frequent	Rare
Wild radish	*Raphanus raphanistrum*	Occasional	Rare
Groundsel	*Senecio vulgaris*	Occasional	-
Hedge-mustard	*Sisymbrium officinale*	Occasional	-
Field sow-thistle	*Sonchus arvensis*	-	Locally frequent
Smooth sow-thistle	*Sonchus oleraceus*	Scarce	-
Corn spurrey	*Spergula arvensis*	Abundant; occasional in 2014	-
Scentless mayweed	*Tripleurospermum inodorum*	Frequent	Rare
Wall speedwell	*Veronica arvensis*	Occasional	-
Germander speedwell*	*Veronica chamaedrys*	Frequent	-
Common field speedwell	*Veronica persica*	Occasional	-
Hairy tare	*Vicia hirsuta*	-	Rare
Smooth tare	*Vicia tetrasperma*	-	Rare
Field pansy	*Viola arvensis*	Frequent	Rare

* Species which are not typical arable weeds

3.8 Field 5

This field was not surveyed in 2011/14 and has recently been converted to arable; the crop was dense with very few weeds similar to field 4.

On the west side was an area of sown maize which had failed almost completely, with a few weeds (Field 5m; Figure 1; Table 10):

Table 10. Arable weeds recorded in Field 5m in 2018.

English Name	**Scientific Name**	**2018**
Green pigweed	*Amaranthus hybridus*	Rare
Shepherd's purse	*Capsella bursa-pastoris*	Rare
Fat hen	*Chenopodium album*	Occasional
Field bindweed	*Convolvulus arvensis*	Rare
Cockspur	*Echinochloa crus-gallii*	Abundant
Black bindweed	*Fallopia convolvulus*	Rare
Red deadnettle	*Lamium purpureum*	Rare
Knot-grass	*Polygonum aviculare*	Rare
Prickly sowthistle	*Sonchus asper*	Rare
Chickweed	*Stellaria media*	Rare
Scentless mayweed	*Tripleurospermum inodorum*	Rare
Small nettle	*Urtica urens*	Rare
Common field speedwell	*Veronica persica*	Rare

4.0 Discussion

In terms of the overall arable weed flora, the arable fields have changed a little across the site between 2011/14 (WYG 2016) and 2018. Some species such as green field speedwell *Veronica agrestis* recorded in 2011 were not seen in 2018, and others such as great brome *Anisantha diandra*, common fumitory (*Fumaria officinalis*) and wild oat *Avena fatua* were seen widely in 2018 but not in 2011/14. Table 11 shows the number of species recorded in each of the fields; the differences in totals recorded are down to a combination of changes in the crops (e.g. field 2A from Setaside to oats) coupled with small differences in the areas surveyed and natural turnover of species in the seed bank. Some differences can also be attributed to deciding which species are arable weeds and therefore included in the survey as there is no standard list of arable weeds.

Table 11. Number of species recorded in arable fields at Sandleford in 2011/14 and 2018.

Field	1	1 m	1A m	2	2A	2Am	3	3m	4	5
2011/14	46	-	-	21	37	-	34	-	24	-
2018	31	11	22	19	3	18	19	11	30	13
No. in common (%)	19 (33%)	-	-	9 (29%)	0 (0%)	-	6 (13%)	-	11 (26%)	-

The Sandleford fields are not rich in specialist arable weeds. Following the arable weeds listed in Wilson & King (2003), the maximum number of specialist arable weeds recorded in any single field in 2018 was 5 (Table 12).

Table 12. Presence of specialist arable weeds in arable fields at Sandleford in 2018. Species recorded in 2011/14 but not recorded in 2018 are given in brackets.

English Name	Scientific Name	1	1m	1am	2	2A	2Am	3	3m	4	5
Great brome	*Anisantha diandra*	+			+	+		+		+	
Thale cress	*Arabidopsis thaliana*	+									
Sun spurge	*Euphorbia helioscopia*		+	+			+	(+)			
Black bindweed	*Fallopia convolvulus*		+	+			+	(+)	+	(+)	+
Common fumitory	*Fumaria officinalis*				+					+	
Sharp-leaved fluellin	*Kickxia elatine*			+				+			
Common poppy	*Papaver rhoeas*				+					+	
Field madder	*Sherardia arvensis*	+						(+)			
Corn spurrey	*Spergula arvensis*		+	+	(+)		+		+	(+)	
Field woundwort	*Stachys arvensis*			+							
Green field-speedwell	*Veronica agrestis*	(+)			(+)			(+)			
Field pansy	*Viola arvensis*	+			(+)					+	
Wild pansy	*Viola tricolor*							(+)			
Totals 2018		**4**	**3**	**5**	**3**	**1**	**3**	**2**	**2**	**4**	**1**

There was relatively little difference in richness of arable weeds between the different field types (Table 12) though in terms of overall abundance within a small area; the failed maize crops were the best habitat at the time of survey. The wheat and oat crops were well-managed with very few weeds within them (other than a few herbicide resistant grasses) and their margins were generally poor too. The Setaside was largely closed grassy vegetation with few arable weeds, though the weeds could be locally frequent where the cover crops have failed or were sparse. The relative richness of these areas in previous surveys were considered due to past ground disturbance stimulating germination of buried seed in the year prior to the survey. The lack of ground disturbance prior to the current survey has led to a closing over of the sward and the predominance of a few vigorous and abundant species, some of which are not considered typical arable weeds. The presence of some weeds such as thorn apple *Datura stramonium* and green amaranth suggests some species may have originated from seed used to feed the game birds.

Most of these weeds are widespread throughout lowland Britain. None of the arable weeds present are protected species. Five of the arable weeds are listed in the Berkshire Rare Plant Register (Crawley 2005); field woundwort *Stachys arvensis* is an Archeophyte (i.e. ancient pre-1600 introduction), and thorn apple *Datura stramonium*, great brome *Anisantha diandra*, medium-flowered winter-cress *Barbarea intermedia* and fool's parsley *Aethusa cynapium* subsp. *agrestis* are neophytes (post-1600 introductions). Of these, field woundwort is the least widespread and is certainly uncommon in Berkshire (Crawley 2005).

A summary of the species recorded is given in the Appendix which also gives the IUCN threat status following the list for England (Stroh *et al.* 2014; species recently introduced to Britain are not assessed). With the exception of sand spurrey which is Vulnerable, and field woundwort which is Near Threatened, all the species are Least Concern.

Following the CIEEM (2018) guidelines, the current weed flora is assessed as being of Local value, supporting a limited range of mostly common and widespread arable weeds. Based on this survey, the arable field margins do not qualify as the UK Biodiversity Action Plan Priority Habitat as these are defined as strips or blocks around arable fields that are managed specifically to provide benefits for wildlife (JNCC 2008). There are no arable margins currently managed specifically for wildlife rather than for game.

However, these margins either currently or have in the recent past supported County-notable plants, The appearance of some of these depends on past levels of ground disturbance prompting germination of buried seed and they may not appear above ground in every year. It is also of note that this habitat provides a foraging resource for other species such as farmland birds.

5.0 Summary

A survey of arable weeds was carried out at Sandleford in July 2018 to provide up-to-date information to inform the planning application.

Setaside, cereal crops and small maize plots were surveyed and recorded for 10 fields or plots. In 2018, the number of arable weeds varied from 3 to 30, with a maximum of 5 specialist arable weeds.

The results are broadly similar to previous surveys in 2011/2014, with some changes due to the different crops, natural turnover of species and differences in timing of the surveys.

The site is not rich in arable weeds and is assessed as of Local value only. None of the arable weeds present are protected species listed under Schedule 8 of the Wildlife & Countryside Act 1981 (as amended). Five of the arable weeds are listed in the Berkshire Rare Plant Register (field woundwort, thorn apple, great brome, medium-flowered winter-cress and fool's parsley).

Under the IUCN threat categories, with the exception of sand spurrey which is Vulnerable, and field woundwort which is Near Threatened, all the native species and archeophytes are Least Concern. The arable field margins are not considered to qualify as UK Biodiversity Action Plan Priority Habitat.

Mitigation for notable arable weeds has been built into the proposals and Ecological Mitigation and Management Plan (Appendix F18 of the Environmental Statement), and remains valid.

6.0 References

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

Crawley, M. J. (2005). BSBI Rare Plant Register. Berkshire & South Oxfordshire V.C. 22. http://bsbi.org/wp-content/uploads/dlm_uploads/Berkshire_RPR_2005.pdf

Hill, D., Fasham, M., Tucker, G., Shewry, M. & Shaw, P., editors (2005). *Handbook of Biodiversity Methods. Survey, evaluation and monitoring*. Cambridge University Press, Cambridge.

JNCC (2008). UK Biodiversity Action Plan Priority Habitat Descriptions. Arable field margins. http://jncc.defra.gov.uk/pdf/UKBAP_BAPHabitats-02-ArableFieldMargins.pdf (accessed 19Sep2018)

Stace, C.A. (2010). *New Flora of the British Isles* (3rd edition). Cambridge University Press, Cambridge.

Stroh, P. A. *et al*. (2014). A Vascular plant Red List for England. Botanical Society of Britain and Ireland, Bristol.

Wilson, P. & King, M. (2003). *Arable plants – a field guide*. English Nature and Wild Guides, Old Basing.

WYG (2012). Sandleford Park. Extended Phase One Habitat Survey. 15 February 2012.

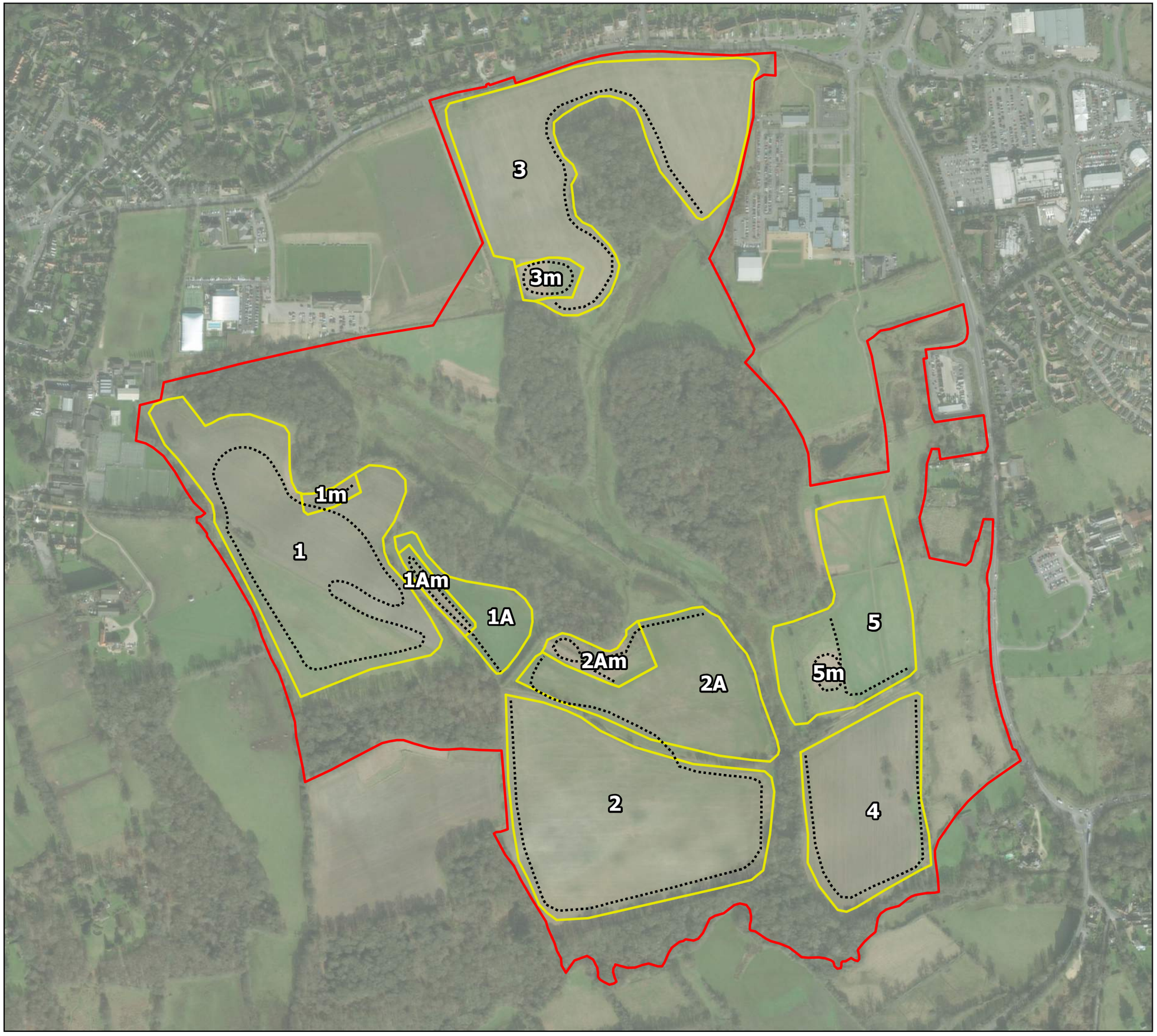
WYG (2014). Sandleford Arable Plants Survey. Unpublished report to Bloor Homes.

WYG (2016). Sandleford Park, Newbury. Extended Phase 1 Habitat Survey. 29 September 2016. Unpublished report to Bloor Homes.

WYG (2018). Appendix F18. Sandleford Park. Ecological Mitigation and Management Plan. Unpublished report to Bloor Homes.

FIGURES

Figure 1 – Arable Weed Survey (2018)



Rev	Date	Notes
A	07/09/18	Initial map production

Legend

- Site boundary
- Field surveyed
- Survey route

0 50 100 200 300 Metres

N

Arable Weed Survey

Sandleford Park
Bloor Homes & Sandleford Farm Partnership

Scale at A3:	Project No:	Drawing No:	Revision:
1:5,735	A070660-23-1	Figure 1	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	20/09/2018	Tim Rich

G:\GIS\GIS Southampton\A070660\23-1_SandlefordPark_2018\MXD\Figure1_ArableWeedSurvey_20918.mxd